REMARKS

Claims 1-11 are pending.

Claims 1-11 are not obvious and unpatentable under 35 U.S.C. §103(a) in view of the combined teachings of the AAPA and Martin.

Martin's invention relates to a protection system for the screen of a cathode ray tube. Martin includes three protection control circuits 34, 35 and 36. In the final rejection and the Examiner's Answer the rejection did not apply any of the teachings in Martin regarding protection control circuits 34, 35 and 36, nor any of the teachings regarding how control circuit 36 relates to NPN transistor 56 and horizontal deflection yoke 17. Instead, the final rejection and the Examiner's Answer refer us to Martin's col. 2, lines 64-72, which state:

> The control grid 14 is clamped to a negative DC bias voltage -V1 from the power supply by a diode 44 connected between voltage -V1 and the control grid 14 and a capacitor 45 connected between the control grid 14 and ground. The output of the unblank driver 22 thereby controls the voltage between the control grid 14 and the cathode 13 by controlling the voltage of cathode 13. This diode-capacitor network makes the voltage at the control grid 14 drop slowly even though its bias voltage -V1 is removed.

Note here, however, that Martin **does not** teach that diode 44 and cathode 45 function to **protect** the screen.

In a new rejection in Paper No. 25, the Board has applied Martin's teaching regarding protection control circuit 36 as it relates to NPN transistor 56 and horizontal deflection yoke 17.

See page 8, line 1+.

The rejection, is based on the Appellant's assessment of the prior art, and therefore, is reversible error.

A rejection under 35 USC §103 must be based on what was known prior to when the invention was made. The Appellant's assessment of the prior art, the problem confronted by the inventor, was not known to anyone prior to when the invention was made since there is no teaching of such an assessment except as set forth in the instant specification, and the instant specification was not known prior to when the invention was made.

There is a teaching in the prior art that it was known to one of ordinary skill in the art that the horizontal output circuit 134 in the AAPA or transistor TR in horizontal output circuit 134 in the AAPA was subject to damage when power supplied to a display device is interrupted.

> As the H/V processor operates no longer, it outputs no pulse signal thereby causing the high voltage charged on the horizontal deflection coil and S-correction capacitor not to be discharged. As a result, a voltage of about +120 to 160 V remains.
>
> Under the above condition, if the power supply to the display device is resumed, the H/V processor constant voltage circuit is driven because of application of a voltage so as to operate the H/V processor, a high voltage with a very high peak value (about +1.5 to 1.8KV) is instantaneously generated. As a result, a surge current resulting from the instantaneous high voltage abruptly flows through a discharge loop damaging a portion of the horizontal output circuit.

Regarding claim 1, AAPA teaches all that is claimed except the feature of *power interruption delay charging means for* ***gradually lowering said input voltage to said H/V processor constant voltage circuit*** *when power supplied to said display device is interrupted,*

(emphasis added) which is deemed to be non-obvious in view of the proposed combination of art.

The present invention provides a power interruption delay charging means for gradually lowering an input voltage to the H/V processor constant voltage circuit 131 when power supplied to a display device is interrupted in order to protect horizontal output circuit 134 consisting of transistor TR.

Now, we must consider what Martin fairly teaches to one of ordinary skill in the art absent the teachings of the present application.

Martin notes a problem that **a power loss could result in a high beam current and local overheating** of the screen, called phosphor or screen burn spots. See col. 1, lines 15-20. Accordingly, Martin **desires to prevent screen burn spots**, and **fails to teach** protection of a horizontal output circuit.

Martin provides three parallel protection circuits (34, 35 and 36) **to prevent screen burn spots**: 1) protection circuit 34 is a cathode control circuit that will inhibit the beam current by controlling the voltage produced by unblank driver 22 for cathode 13; 2) protection circuit 35 is an accelerator grid control circuit that functions to short any voltage at accelerator grid 15 to ground; and 3) protection circuit 36 is a horizontal deflection control circuit that horizontally deflects the beam off the screen while the voltage at accelerator grid 15 is decaying to zero. According to Martin:

1) Cathode control circuit 34 includes an AND gate 42 that prevents beam generation when protection is required. Martin **does not** teach that diode 44 and cathode 45 function to **protect** the screen or any other protection function.

2) Accelerator grid control circuit 35 is necessary to short accelerator grid 15 to ground because the capacitance in capacitor 46 would normally prevent an immediate drop to zero.

3) Horizontal deflection control circuit 36 includes a transistor 58, resistors 61 and 62, relay coil 65, and relay contact 64. To prevent screen burn spots, transistor 58 is turned on by the two bias voltages provided via resistors 61 or 62. These two bias voltages are arranged so that if one fails the other will be present. Also, the value of these bias voltages are chosen so that even if there is a power failure, **the voltages decay off at a slow enough rate so that transistor 58 will be turned on long enough** to cause the beam to be horizontally deflected off the screen, thereby preventing the beam from burning the screen.

In the Board's new ground of rejection in Paper No. 25, we are referred to Martin's discussion of horizontal deflection yoke 17 and protection circuit 36, *i.e.*, horizontal deflection control circuit 36. In normal operation deflection of the beam by yoke 17 is controlled by X-yoke drive 101 over line 55 at the base of NPN transistor 56 which is connected between one side of the horizontal deflection yoke 17 and has a resistor 57 to ground..

Martin suggests that in order **to avoid damage to the screen** it is desired to cause the beam to be horizontally deflected off the screen. This is accomplished by protection circuit 36. In particular, a second NPN transistor 58 is normally off and is connected across transistor 56 with a current limiting resistor 59 connected therebetween. A positive DC bias voltage from the power supply +V3 is applied to the yoke 17. Transistor 58 is normally off and therefore current through

transistor 56 controls the current through the horizontal deflection yoke 17 and thus the horizontal deflection of the beam. When it is necessary to protect the screen 16, the transistor 58 is turned on and additional current is drawn through the coil of the horizontal deflection yoke 17 so as to drive the beam off the screen.

According to the foregoing teaching found in Martin, one of ordinary skill in the art would have modified the AAPA to include a circuit similar to protection circuit 36 **in order to protect the screen** if it is shown that a similar problem would exist regarding the screen in the AAPA

Assuming, *arguendo*, that "causing a single line to be vertically drawn on the center of the screen" would damage the screen. Modifying the AAPA to prevent such a line is taught by Martin, that teaching being to drive the beam off the screen. **Accordingly, one of skill in the art would further look to Martin's protection circuit 36 which has the function of to driving the beam off the screen.**

Looking to the Board's decision in Paper No. 25, the paragraph spanning pages 12 and 13 refer to Martin's teaching regarding "the situation where the power supply fails" and that "Martin teaches that when the power supply fails, the horizontal deflection control circuit 36 provides protection by causing the voltage to transistor 58 to decay off at a slow enough rate to so that transistor 58 will be turned on to cause the beam to be horizontally deflected off the screen."

Therefore, any modification of the AAPA would entail connecting a protection circuit (36 which includes transistor 58) to the AAPA's transistor TR of horizontal output circuit 134 in the same manner as taught by Martin. **Thus any voltage charged on the horizontal deflection coil**

H-DY and S-correction capacitor Cs will be discharged. The Applicant is not surprised (Paper No. 27, page 3) in the Board's reliance on protection circuit 36 in applying Martin to AAPA, the Applicant was only surprised in learning that the Board did not apply protection circuit 36 as taught by Martin which result in connecting protection circuit 36 to the AAPA's transistor TR of horizontal output circuit 134 in the same manner as taught by Martin.

In view of claim 1 of the present application, however, it is required that power interruption delay charging means be provided **for gradually lowering <u>an input voltage to the horizontal/vertical processor constant voltage circuit</u>** 131 of the AAPA when power supplied to the display device is interrupted.

In connecting protection circuit 36 to the AAPA's transistor TR of horizontal output circuit 134 in the same manner as taught by Martin, the input voltage to transistor 58 would decay off at a slow enough rate to so that transistor 58 will remain turned on long enough to cause the beam to be horizontally deflected off the screen, as desired and taught by Martin **to prevent screen burn spots** on the screen. Note, that by modifying AAPA by connecting protection circuit 36 to the AAPA's transistor TR of horizontal output circuit 134 in the same manner as taught by Martin, **the result would be** that horizontal output circuit 134 and transistor TR in horizontal output circuit 134 would be protected.

Accordingly, if the modification of AAPA as taught by martin results in the protection of AAPA's horizontal output circuit 134 and transistor TR, there would be no reason, and the applied art has not provided any other reason, to modify the AAPA to gradually lowering an input voltage to the horizontal/vertical processor constant voltage circuit.

Martin's teaching fails to suggest modification of the AAPA by **gradually lowering an input voltage to the horizontal/vertical processor constant voltage circuit** 131 of the AAPA, and the Board has failed to provide a *prima facie* basis of support for suggesting that such a modification would have been obvious.

> *In re Rijckaert*, 28 USPQ2d 1955 (CAFC 1993) states:
>
> "A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." *In re Bell,* 991 F.2d 781, 782, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting *In re Rhinehart,* 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976). If the examiner [Board] fails to establish a *prima facie* case, the rejection is improper and will be overturned. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

Thus far, it has been shown that taking into account only what is taught by the prior art, **there is no teaching** which would have fairly suggested to one of ordinary skill in the art any reason to provide power interruption delay charging means for gradually lowering an input voltage to the horizontal/vertical processor constant voltage circuit 131 of the AAPA when power supplied to the display device is interrupted.

Accordingly, the rejection of claim 1 is deemed to be in error and should be withdrawn.

Looking to the Board's decision in Paper No. 25, we have attempted to ascertain why the Board has suggested that providing power interruption delay charging means for gradually lowering an input voltage to the horizontal/vertical processor constant voltage circuit 131 of the

AAPA when power supplied to the display device is interrupted would have been obvious.

It appears that the Board's statement on page 9, lines 13-17 of paper No. 25, *i.e.,* "we find Martin's additional teaching of slowly decaying the voltage to the horizontal deflection yoke would have suggested to an artisan gradually dropping the voltage of the voltage source V1 of the horizontal/vertical constant voltage circuit [131] of the [AAPA]" to be key to the Board's finding.

Looking again to Martin, we find no such teaching of "slowly decaying the voltage to the horizontal deflection yoke." Martin teaches slowly decaying the voltage to the control grid 14. Martin also teaches that the voltage applied to transistor 58 in the protection circuit 36 also slowly decays. However, Martin's voltage -V1 to the horizontal deflection yoke 17 is **not** slowly decayed, nor is the slowly decaying voltage of the protection circuit 36 in Martin provided to the deflection yoke 17. The slowly decaying voltage of the protection circuit 36 in Martin goes no further than the base of transistor 58, turning transistor 58 on long enough to draw extra current through deflection yoke 17 in order to drive the beam off the screen **to prevent screen burn spots** on the screen.

Accordingly, there is no ***prima facie*** showing that an artisan would have been taught to provide the slow voltage decay circuit of the horizontal deflection control circuit 36 of Martin at the voltage source V1 of the horizontal/vertical constant voltage circuit 131 of the AAPA instead of at transistor TR in the same manner it is connected to Martin's transistor 56.

In Paper No. 27, page 6, lines 16-20, however, the Board finds that the artisan would have provided the slow voltage decay circuit of the horizontal deflection control circuit 36 of Martin

at the voltage source V1 of the horizontal/vertical constant voltage circuit 131 of the AAPA, instead of at transistor TR in the same manner it is connected to Martin's transistor 56, "because that is where the supply voltage is located, and because the current would flow to transistor TR, via circuits 131-133."

The Board fails to take into account, however, that Martin only teaches decaying the input voltage to protection circuit 36, and that by modifying AAPA to include the protection circuit 36 by connecting protection circuit 36 to the base of transistor TR (AAPA), then a new input voltage would exist, that being the input voltage applied to the base of transistor 58 (Martin). It is this input voltage that Martin desires to slowly decay in order to protect the screen by allowing the beam to deflect off the screen. Martin does not teach slowly decaying an input voltage to any other synchronization circuit.

Accordingly, the rejection of claim 1 is deemed to be in error and should be withdrawn.

In Paper No. 27, page 6, lines 20+, the Board held, "[i]n addition, because Martin discloses that the protection circuits are provided to regulate the input circuits to inhibit high beam current which would otherwise damage the screen, an artisan would be taught to provide the horizontal deflection control circuit 36 to the H/V processor constant voltage circuit 131."

The Board's use of the phrase "regulate the input circuits" is overly broad, because Martin only teaches regulating voltages applied to various components of the cathode ray tube. There are **no** "input circuits" (see Fig. 2) being regulated in Martin, there are only certain outputs of the circuits shown in Fig. 2 being regulated .

As noted previously, Martin notes a problem that a power loss could result in a **high beam current** and local overheating of the screen, called phosphor or screen burn spots. See col. 1, lines 15-20. Martin provides three parallel protection circuits (34, 35 and 36) to prevent screen burn spots: 1) protection circuit 34 is a cathode control circuit that will inhibit the beam current **by controlling the voltage produced** by unblank driver 22 for cathode 13; 2) protection circuit 35 is an accelerator grid control circuit that functions **to short any voltage at accelerator grid 15 to ground**; and 3) protection circuit 36 is a horizontal deflection control circuit that **horizontally deflects the beam off the screen while the voltage at accelerator grid 15 is decaying to zero**.

1) Cathode control circuit 34 includes an AND gate 42 that prevents beam generation when protection is required. Martin **does not** teach that diode 44 and cathode 45 function to **protect** the screen or any other protection function.

2) Accelerator grid control circuit 35 is necessary to short accelerator grid 15 to ground because the capacitance in capacitor 46 would normally prevent an immediate drop to zero.

3) Horizontal deflection control circuit 36 includes a transistor 58, resistors 61 and 62, relay coil 65, and relay contact 64. To prevent screen burn spots, transistor 58 is turned on by the two bias voltages provided via resistors 61 or 62. These two bias voltages are arranged so that if one fails the other will be present. Also, the value of these bias voltages are chosen so that even if there is a power failure, the voltages decay off at a slow enough rate so that transistor 58 will be turned on long enough to cause the beam to be horizontally deflected off the screen, thereby preventing the beam from burning the screen.

Martin clearly does not suggest regulating any "input circuits," there are only certain outputs of the circuits shown in Fig. 2 being regulated.

Accordingly, the rejection of claim 1 is deemed to be in error and should be withdrawn.

It has been shown that the applied art fails to teach all that is claimed in claim 1, and claims 2-11 are deemed patentable over the applied art for the same reasons as claim 1.

The examiner is respectfully requested to reconsider the application, withdraw the objections and/or rejections and pass the application to issue in view of the above amendments and/or remarks.

Should a Petition for extension of time be required with the filing of this Response, the Commissioner is kindly requested to treat this paragraph as such a request and is authorized to charge Deposit Account No. 02-4943 of Applicant's undersigned attorney in the amount of the incurred fee if, **and only if**, a petition for extension of time be required **and** a check of the requisite amount is not enclosed.

Respectfully submitted,

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